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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,097	06/13/2001	Satoru Shiratori	1582.1004	3217

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EXAMINER

MULLINS, BURTON S

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 08/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,097

Applicant(s)

SHIRATORI, SATORU

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 7-9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following errors of syntax. Examples include: on p.1, line 22, "The magnet is made into multi-polar..." and p.2, line 11, "...when a high rotational torque worked" are not clear. On p.5, lines 3, 10 and 19, insert ---the-- before "aforementioned". On line 17, "and yet as sleeve a carbon fiber..." is not clear. On p.7, line 23, change "In" to --On--. On p.8, line 3, change first "in" to --on--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, recitation "and the outer peripheral face thereof" lacks a clear antecedent. Does this refer to the face of the plate or the "ordinary magnetic body"? Recitation "formed into polygon" should apparently be ---formed into a polygon---. Recitation "...having opposing planes in its inner faces..." is vague, indefinite and lacks a clear antecedent. In claim 3, is the step part in each magnet piece as well as the single magnet? In claim 4, it is not clear how a single magnet "is arranged in plurality". In claim 5, the plural "permanent magnets" lacks antecedent basis.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter et al. (US 4,642,502) in view of Canders et al. (US 5,485,045). Carpenter teaches a magnet rotor including: back yoke or core 10 comprising plural magnetic material lamina 12

(e.g., steel), each lamina having a polygonal outer surface; plural permanent magnets 17, each with flat inner surface 18 attached to the respective core side 16 with adhesive (c.1, lines 11-13). Carpenter differs in that a sleeve is not pressed about the magnets.

Canders teaches a high-speed rotor including permanent magnets 3 attached to a polygonal rotor shaft 1 and a cylindrical, carbon fiber sleeve or binding 4 press-fit about the magnets (c.3, lines 55-57). The binding pre-stresses the magnets against shaft and thereby reduces balancing errors and allows for high-speed operation (c.1, line 59-c.2, line 14).

It would have been obvious to one having ordinary skill to modify Carpenter and provide a sleeve per Candors since the sleeve would have been desirable to pre-stress the plurality of magnets to the core and to provide support for high-speed operation.

8. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter and Candors as applied to claim 1 above, and further in view of applicant's disclosed prior art. Carpenter and Candors do not teach non-magnetic end plates (claim 2) or AC machine stator ("ring") details. Applicant describes the prior art AC machine rotors (Figs.7-9) including plates 46 holding magnets 44. The prior art also teaches a stator 41 with coils mounted thereto. It would have been obvious to one having ordinary skill to modify Carpenter and Candors and provide end plates per applicant's admitted prior art since these would have been desirable for supporting the magnets in an axial position, and further to provide a stator and coil per the prior art since these would have been necessary for operation.

9. Claims 1-2 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter and Zigler et al. (US 5,237,737). With regard to claim 1, as explained above, Carpenter differs in that a sleeve is not pressed about the magnets.

Zigler teaches a permanent magnet rotor with magnets 22 applied to a core using epoxy adhesive (c.8, line 53) to prevent rotational slippage of the magnets, and further teaching a magnetizing means such as a coil 124 (Fig.8) that establishes N/S poles (c.7, lines 62-67). Zigler also teaches an outer shell 16 for retaining the magnets (c.5, lines 33-40). End plates 14/30 are at either end of the stacked lamination core. The adhesive also bonds mutually neighboring magnets (c.5, lines 54-57). Though Zigler specifies a steel sleeve, he also contemplates Kevlar or fiberglass (c.5, lines 28-32).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Carpenter and provide a shell per Zigler pressed over the periphery of the magnets for the purpose of retaining them.

Allowable Subject Matter

10. Claim 3 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art does not teach a step part formed on the outer peripheral surface of the magnets at both ends, with the sleeve press-fit in the step (claim 3).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
July 31, 2002